

STATEMENT OF WORK FOR REMEDIAL INVESTIGATION ADDENDUM, FINAL
FEASIBILITY STUDY, AND PERIMETER AIR MONITORING PROGRAM
West Lake Landfill OU1

I. BACKGROUND INFORMATION

The West Lake Landfill Site (Site) is located in Bridgeton, Missouri. The U.S. Environmental Protection Agency (EPA) is the lead agency, and the Missouri Department of Natural Resources (MDNR) is the supporting state agency. The EPA ID Number is MOD079900932.

The Site was used agriculturally until a limestone quarrying and crushing operation began in 1939. The quarrying operation continued until 1988 and resulted in two quarry pits. Beginning in the early 1950s, portions of the quarried areas and adjacent areas were used for landfilling municipal refuse, industrial solid wastes, and construction/demolition debris. These operations were not subject to state permitting because they occurred prior to the formation of MDNR in 1974. Two landfill areas were radiologically contaminated in 1973 when they received soil mixed with leached barium sulfate residues.

The Site is on a parcel of approximately 200 acres. It consists of the recently active Bridgeton Sanitary Landfill and several old inactive areas with sanitary and demolition fill. The Site is divided into two operable units (OUs). OU1 addresses two of the inactive landfill areas that are radiologically contaminated known as Area 1 and Area 2. The other landfill areas that are not impacted by radionuclide contaminants are addressed by OU2.

II. OBJECTIVE AND SCOPE

The Respondents and Federal Respondents shall perform the following tasks, as outlined further below.

TASK I – Scoping Meeting

TASK II - OU1 Remedial Investigation Addendum

-Nature and Extent of RIM Contamination

-Contaminant Extent, Fate and Transport

-Baseline Risk Assessment

TASK III – OU1 Final Feasibility Study

TASK IV – Air Monitoring Program

For Tasks II and III, this work shall build on information, evaluations and data collected prior to and as part of the Remedial Investigation (RI), Feasibility Study (FS), Supplemental Feasibility Study (SFS), and Record of Decision (ROD) and shall incorporate information, evaluations and data collected since the RI/FS, ROD and SFS were completed. In performance of Task IV, the Respondents and Federal Respondent shall utilize and build upon the October 2014 EPA-approved “Air Monitoring, Sampling and QA/QC Plan.”

West Lake Landfill OU1

Statement of Work

Page 1

In performing this work the Respondents and Federal Respondent shall follow the National Contingency Plan, 40 CFR Part 300 and EPA guidance, including but not limited to the “Interim Final Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA” (RI/FS Guidance), OSWER Directive 9355.3-01 (October 1988, or subsequently issued guidance); “Guidance for Data Useability in Risk Assessment”, OSWER Directive 9285.7-09A (April 1992); “Establishment of Cleanup Levels for CERCLA Sites with Radioactive Contamination”, OSWER Directive 9200.4-18, (August 1997); “Clarification of the Role of Applicable, or Relevant and Appropriate Requirements in Establishing Preliminary Remediation Goals under CERCLA”, OSWER Directive 9200.4-23, (August 1997); “Use of Soil Cleanup Criteria in 40 CFR Part 192 as Remediation Goals for CERCLA Sites”, OSWER Directive 9200.4-25 (February 1998); “Remediation Goals for Radioactively Contaminated CERCLA Sites Using the Benchmark Dose Cleanup Criteria in 10 CFR Part 40 Appendix A, I, Criterion 6(6)”, and OSWER Directive 9200.4-35P (April 2000).

TASK I – SCOPING MEETING

Respondents and Federal Respondent shall participate in a scoping meeting with EPA regarding Tasks II, III and IV prior to the submission of the deliverables. The purpose of the scoping meeting is to develop a common understanding regarding the work to be performed under Tasks II, III and IV described below. Respondents and Federal Respondent shall prepare an Abbreviated Work Plan covering both Tasks II and III. The Abbreviated Work Plan shall describe the work to be performed pursuant to this Statement of Work and will build upon previously approved work plans. Once approved by EPA this Work Plan will become a modification to the 1994 RI/FS Work Plan.

TASK II - OU1 REMEDIAL INVESTIGATION ADDENDUM

Respondents and Federal Respondent shall prepare a Remedial Investigation Addendum that reflects all new information and data collected at OU1 since 2008, including an updated conceptual site model. Specifically, the Respondents and Federal Respondent shall update the relevant portions of these sections of the 2000 RI Report:

- Nature and extent of radiologically impacted material within OU1
- Contaminant Fate and Transport
- Baseline Risk Assessment

TASK III – OU1 FINAL FEASIBILITY STUDY

Respondents and Federal Respondents shall prepare and submit a Final Feasibility Study for OU1 (FFS). The FFS shall evaluate remedial alternatives to address the contamination at and/or originating from OU1. The FFS shall provide sufficient information to support EPA’s evaluation of the June 2008 Record of Decision for OU1. The FFS shall, at a minimum, consider the following alternatives:

- West Lake Landfill OU1
- Statement of Work

Page 2

1. Partial excavation of the contaminated soil that is at or near the surface that contributes to the greatest radiological dose to workers. Segregation and placement of non-impacted and impacted soil during the removal of the highest contaminated soil near the surface should be considered in these evaluations. Options for both on-site and off-site disposal of the excavated contaminated soils should be evaluated. Respondents and Federal Respondent shall propose remediation goals for the radionuclides in order to evaluate volumes of soils to be excavated as well as potential segregation methodologies. Partial excavation alternatives shall include:
 - a. Partial excavation with a remediation goal of 52.9 pCi/g of combined radium (radium-226 plus radium-228) or combined thorium (thorium-230 plus thorium-232);
 - b. Partial excavation with a remediation goal of 1,000 pCi/g of combined radium (radium-226 plus radium-228) or combined thorium (thorium-230 plus thorium-232);
 - c. Partial excavation with a remediation goal of 7.9 pCi/g of combined radium (radium-226 plus radium-228) or combined thorium (thorium-230 plus thorium-232) down to a total depth of 16 foot beneath the ground surface; and
 - d. Other partial excavation scenarios and appropriate remediation goals given the reasonably anticipated land use of the Site.
2. Full excavation with off-site disposal of all RIM greater than 7.9 pCi/g of combined radium (radium-226 plus radium-228) or combined thorium (thorium-230 plus thorium-232).
3. Full excavation with on-site disposal of all RIM greater than 7.9 pCi/g of combined radium (radium-226 plus radium-228) or combined thorium (thorium-230 plus thorium-232) and appropriate cover/cap on RIM.
4. 2008 ROD Selected Remedy (Former Alternative L4).

The FFS shall be a comprehensive document, incorporating the elements of and updating as appropriate the June 2006 Feasibility Study Report and September 2011 Supplemental Feasibility Study. The FFS shall also include the information associated with and results of the following studies that have been or will be performed by Respondents and Federal Respondent since 2006 (including revisions made to these documents based upon EPA Comments):

- Supplemental Feasibility Study
- Discount Rates and Cost Estimates Evaluation
- Phase 1 RIM Investigation
- Area 1 and Area 2 Additional Characterization
- Alternate Cover Designs Evaluation
- Partial Excavation Alternatives
- Evaluation of the Use of Apatite/Phosphate Treatment Technology

- Evaluation of Possible Effects of a Tornado on Integrity of the ROD Selected Remedy
- Evaluation of Risks Associated with Subsurface Smoldering Events
- Radon Flux Calculations
- Bird Mitigation Analysis

**Note the work associated with the Fate and Transfer Study and Apatite Treatment Technology Evaluation will be considered and incorporated into a Groundwater Investigation which shall be addressed in a Statement of Work that will be transmitted to the parties under separate cover.*

In addition, the FFS shall also address the following specific items:

1. A thorough evaluation of the appropriateness of volume separation techniques and other physical and/or chemical treatment technologies as they relate to partial and full excavation alternatives.
2. As originally discussed in the Supplemental Feasibility Study, truck and other industrial injuries/fatalities are generally not environmental risks that should be considered in a short-term effectiveness analysis. For the FFS, the focus of this type of consideration should be on the extent to which accidents expose workers or the community to possible environmental releases resulting from such accidents and what mitigative measures can be implemented to reduce those risks.
3. Environmental justice issues must be included in both the short-term and long-term effectiveness sections of the alternatives analysis.
4. Updated risk assessment tables are needed to reflect site data collected since the 2008 ROD.
5. Long term effectiveness of the proposed caps/covers in addressing both humid region conditions and long-term shielding for RIM.
6. Long term effectiveness of cap/cover on potential migration of COCs to leachate and groundwater should be addressed in the Risk Assessment section.
7. In updating the ARARs discussion and tables in the FFS, additional detailed assessment of UMTRCA and RCRA Subtitle C landfill cover designs shall be included.
8. Discussion of Climate Change and vulnerabilities associated with extreme weather events shall be included when evaluating the long term effectiveness criteria.
9. The potential impacts of a Subsurface Smoldering Event in or near OU1 should be assessed in the short and long term effectiveness criteria.

TASK IV – PERIMETER AIR MONITORING PROGRAM

Respondents and Federal Respondent shall prepare and submit a Perimeter Air Monitoring Program Work Plan. Respondents and Federal Respondent shall implement a Perimeter Air Monitoring Program Plan to support future remedial design activities by

West Lake Landfill OU1

Statement of Work

Page 4

monitoring for releases of hazardous substances from OU1. The perimeter air monitoring program shall be designed to monitor for Site-related radioactive airborne particulates, radon gas, gamma radiation, and volatile organic compounds (VOCs) and to monitor off-site local radiation background. Respondents and Federal Respondent will use the data from this monitoring to assess and document whether hazardous substances are being released from the boundaries of OU1. The perimeter air monitoring program shall build upon the October 2014 EPA-approved "Air Monitoring, Sampling and QA/QC Plan" (Air Monitoring Plan). EPA has discussed several changes with the Respondents' representative to the existing Air Monitoring Plan and will transmit those and additional comments via a separate comment letter.

III. SCHEDULE OF DELIVERABLES/MILESTONES

TASK	DELIVERABLE/MILESTONE	DUE DATE*
I	Scoping Meeting and Outline for Abbreviated Work Plan for Remedial Investigation Addendum and Final Feasibility Study	Within 14 days of Respondents' and Federal Respondent's agreement to perform the additional work
I	Draft Abbreviated Work Plan for Remedial Investigation Addendum and Final Feasibility Study	Within 30 days of Respondents' and Federal Respondent's agreement to perform the additional work
II	Final Abbreviated Work Plan for Remedial Investigation Addendum and Final Feasibility Study	Within 10 days of receipt of EPA comments on the Draft Abbreviated Work Plan
II	Draft Remedial Investigation Addendum	Within 60 days of receipt of validated data package from the Area 1/Area 2 Additional Characterization
II	Final Remedial Investigation Addendum	Within 21 days of receipt of EPA's comments on the Draft Remedial Investigation Addendum
III	Draft Final Feasibility Study	Within 120 days of receipt of validated data package from the Area 1/Area 2 Additional Characterization
III	Final Feasibility Study	Within 30 days of receipt of EPA's comments on the Draft Final Feasibility Study
IV	Draft Air Monitoring Program Plan	Within 30 days of Respondent's and Federal Respondent's agreement to perform the additional work
IV	Final Air Monitoring Program Plan	Within 14 days of receipt of EPA's comments on the Draft Air Monitoring Program Plan

**all days referenced in the schedule are calendar days*